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Patrick G. Burns, Esq.
GREER, BURNS & CRAIN, LTD.
300 South Wacker Dr., Suite 2500
Chicago, IL 60606

EXAMINER	
HUYNH, CONG LAC T	

ART UNIT	PAPER NUMBER
2178	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/821,298	YAMANAKA ET AL.	
	Examiner	Art Unit	
	Cong-Lac Huynh	2178	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 January 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 4-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 4-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to communications: amendment filed 1/6/06 to the application filed on 3/29/01.

2. Claims 1-2, 4-7 are pending in the case. Claims 1, 6, and 7 are independent claims.

Claim Objections

3. Claim 13 is objected to since the claimed limitation repeats one of the limitations in claim 9 (lines 15-17) on which it is dependent.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1-2, 4-7 remain rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding independent claim 1, the feature of moving at least one second data item "contained in the third page to the first page" when the first page has sufficient available space and said second page has insufficient available space is not supported in the

specification. The specification shows moving the second data item from the third page to the second page, not to the first page: "In the step (c), when both of the first and second pages have sufficient available space, the at least one second data may be moved to the second page" (page 5, line 26 to page 6, line 1).

Independent claims 6 and 7 are rejected under the same issue.

Dependent claims 2, 4-5 are rejected for fully incorporating the deficiencies of their base claim 1.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-2, 5-7 remain rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding independent claim 1, the feature "moving at least one data item contained in the third page to the first or the second page..." (lines 11-12) is confusing since said moving is clarified the case that the "second data item is moved to the first page" (lines 15-17) only.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1-2, 4-7 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamigawa (US Pat No. 5,307,486, 4/26/94) in view of Culik, II, Dense Multiway Trees, ACM Transactions on Database Systems, vol.6, no.3, September 1981, pages 486-512.

Regarding independent claim 1, Nakamigawa discloses:

- storing information on an amount of available space in each of said plurality of nodes (**figures 2-3**: the pointer count in each node is the information indirectly

showing the amount of space available in each node, for example, the pointer count in the node in figure 3 indicates that there are only three records A, B, C in the node and so said node has available space for two more records)

- acquiring an amount of available space in the first node and the second node based on said information stored in step (a), when a first data item is inserted into or deleted from the target node, said plurality of pages include the first node and the second node in a sequential arrangement of the plurality of nodes (**figure 4**: the pointer count (see fig. 2) in the target node with records A, C, D, E, F shows there is *zero available space* for inserting a record to the target node, the pointer count in the adjacent node with records G, H, I shows there are available space for two records; **col 3, lines 39-49, col 4, lines 15-28**: determining if the pointer count of a target node after insertion is greater than M and determining if the pointer count of an adjacent node is less than M' imply that the amount of available space of the first node and the second node is acquired based on the pointer count data)
- moving at least one second data item contained in said first node to said second node according to said amount of available space in each of said first and second nodes, before insertion of said first data item into said first node or after deletion of said first data item from said third page (**figure 4**: record F, equivalent to the second data item, is moved from the target node to the adjacent node, which is equivalent to the second node, since the adjacent node has some space

available whereas the target node does not have any available space for inserting record B, which is equivalent to the first data item)

- wherein in the moving step, when said first pages has sufficient available space, and said second page has insufficient available space, said at least one second data item is moved to said first page (**figure 4**: item F, which is considered equivalent to the second data item, is moved to the node (GHI), which has sufficient available space whereas node (ACDEF) has insufficient available space if inserting item B, which is equivalent to the first data item, to the node (ACDEF) is needed to be carried out)

Nakamigawa does not disclose a method of data item managing as above is applied to a plurality of data items contained in a plurality of pages. Instead, Nakamigawa discloses a method *of data item managing for a plurality of data items contained in a plurality of nodes* (figures 2-5).

Culik discloses that each node in a B-tree corresponds to a page where insertion or deletion can be applied to the B-tree (pages 486-487), each node has the left and right brothers (page 487), and a node can be created (page 492).

It would have been obvious to an ordinary skill in the art at the time of the invention was made to have incorporate Culik into Nakamigawa to show that managing of data items in the nodes in Nakamigawa can be applied to managing the data items in the pages, arranged in sequence in a document where the pages are equivalent to the nodes.

Nakamigawa also does not disclose the third page for inserting or deleting data items. However, it would have been obvious to one of ordinary skill in the art at the time of the

invention was made to have combined Culik into Nakamigawa to include a first page (or first node) for managing the data item in the sequential pages for the following reason. In Nakamigawa, two nodes are mentioned: the target node and the adjacent node. The first data item is inserted into or deleted from the target node (equivalent to the third node of the invention) and the second data item is moved from the target node to the adjacent node (equivalent to the second node of the invention).

The claimed limitations, in a slightly difference, recite three pages, equivalent to three nodes, in which the first page, the third page, and the second page arranged in such a sequence where the insertion or deletion of the first data item occurs in the third page, and where the moving of the second data item contained in the third page to either the first page or the second page. It is easy to recognize that the target node of Nakamigawa is equivalent to the third node, and that *the adjacent node of Nakamigawa is equivalent to either the first page or the second page of the claim* since the adjacent node is the one that the second data item is moved to. Also, it was obvious that the "adjacent node" of the target node means that the "adjacent node" can precede or follows the target node *provided that it is adjacent to the target node*. Further, as in Culik, each node may have the left brother and the right brother, and it is possible to create a leaf node. Therefore, it is suggested adding a node equivalent to the first node to the sequence of the target node and the adjacent node since *the node added is merely a form of adjacent node* and for performing the same function as that of the first node or the second node of the invention.

Regarding claim 2, which is dependent on claim 1, Nakamigawa discloses that when said amount of said available space is equal to or less than a predetermined amount, said information indicates that substantially no available space exists (col 1, lines 25-45, col 2, lines 39-50, figures 2-4). As disclosed, ***the pointer count increases 1*** *when a record is inserted in a node* (figures 2-3: the pointer count of the node in fig. 3 increases 1 when record B is inserted in said node). For a maximum size M of the records in one of the nodes, moving a number of records from the target node to the adjacent node happens if (a pointer count of a target node **after insertion) > M**, and (a pointer count of the adjacent node) < M (col 1, lines 25-45). The pointer count of a target node after insertion is greater than M where M represents the size of the target node (col 2, lines 39-50) *means that before the insertion a record, the pointer count of the target node must be equal to the amount M*. The moving a data item in the target node to the adjacent node occurs since either there is **not enough** space for inserting data in the target node or there is **no** available space in the target node for inserting data. In other words, the *information relating to the node size indicates that substantially no space available exists*.

Regarding claim 4, which is dependent on claim 1, Nakamigawa discloses that said amount of the available space is classified into one of a plurality of ranges of amounts of the available space, and said information on the amount of the available space indicates one of the plurality of ranges (col 2, lines 39-50 and col 1, lines 25-62). As disclosed in Nakamigawa, the maximum size M is for storing the records in one of the nodes and

size M' smaller than M is for storing the records in an adjacent node thereto, and an insert process of the records to one of the nodes is performed based on the sizes M and M' via checking the pointer count of the target node and the pointer count of the adjacent node for available space. The minimum size m is for storing the records in one of the nodes and size m' larger than m for storing the records in an adjacent node thereto, and a delete process of the records from one of the nodes is carried out based on the sizes of m and m' via checking the pointer count of the target node and the pointer count of the adjacent node for available space. The ranges of (M', M) and (m, m') are classified for available space for the insertion process and the deletion process. Therefore, the information of pointer count for deriving the available space in one of the nodes indicates one of the plurality of ranges, either the range for insertion or the range for deletion.

Regarding claim 5, which is dependent on claim 1, Nakamigawa discloses that one of the plurality of ranges including the biggest amount of the available space is wider than the other of said plurality of ranges (col 2, lines 39-50: the range (M', M) includes the maximum size M for storing records in one of the nodes where M is used for checking the available space of the target node and where range (M', M) is wider than range (m, m').

Claims 6 and 7 are for a computer-readable storage medium and an apparatus of method claim 1, and are rejected under the same rationale.

11. Claims 8-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamigawa (US Pat No. 5,307,486, 4/26/94) in view of Culik, II, Dense Multiway Trees, ACM Transactions on Database Systems, vol.6, no.3, September 1981, pages 486-512.

Regarding independent claim 8, Nakamigawa discloses:

- storing information on an amount of available space in each of said plurality of nodes (**figures 2-3**: the pointer count in each node is the information indirectly showing the amount of space available in each node, for example, the pointer count in the node in figure 3 indicates that there are only three records A, B, C in the node and so said node has available space for two more records)
- acquiring an amount of available space in the first node and the second node based on said information stored in step (a), when a first data item is inserted into or deleted from the target node, said plurality of pages include the first node and the second node in a sequential arrangement of the plurality of nodes (**figure 4**: the pointer count (see fig. 2) in the target node with records A, C, D, E, F shows there is *zero available space* for inserting a record to the target node, the pointer count in the adjacent node with records G, H, I shows there are available space for two records; **col 3, lines 39-49, col 4, lines 15-28**: determining if the pointer count of a target node after insertion is greater than M and determining if the pointer count of an adjacent node is less than M' imply that the amount of available space of the first node and the second node is acquired based on the pointer count data)

- moving at least one second data item contained in said first node to said second node according to said amount of available space in each of said first and second nodes, before insertion of said first data item into said first node or after deletion of said first data item from said third page (**figure 4**: record F, equivalent to the second data item, is moved from the target node to the adjacent node, which is equivalent to the second node, since the adjacent node has some space available whereas the target node does not have any available space for inserting record B, which is equivalent to the first data item)
- wherein in the moving step, when both of said first and second pages have sufficient available space, said at least one second data item is moved to said second page (**figure 4**: the adjacent node has sufficient available space, and the record F equivalent to the second data item, is moved from the target node to the adjacent node, which is equivalent to the second page)

Nakamigawa does not disclose a method of data item managing as above is applied to a plurality of data items contained in a plurality of pages. Instead, Nakamigawa discloses a method *of data item managing for a plurality of data items contained in a plurality of nodes* (figures 2-5).

Culik discloses that each node in a B-tree corresponds to a page where insertion or deletion can be applied to the B-tree (pages 486-487), each node has the left and right brothers (page 487), and a node can be created (page 492).

It would have been obvious to an ordinary skill in the art at the time of the invention was made to have incorporate Culik into Nakamigawa to show that managing of data items

in the nodes in Nakamigawa can be applied to managing the data items in the pages, arranged in sequence in a document where the pages are equivalent to the nodes. Nakamigawa also does not disclose the third page for inserting or deleting data items. However, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have combined Culik into Nakamigawa to include a first page (or first node) for managing the data item in the sequential pages for the following reason. In Nakamigawa, two nodes are mentioned: the target node and the adjacent node. The first data item is inserted into or deleted from the target node (equivalent to the third node of the invention) and the second data item is moved from the target node to the adjacent node (equivalent to the second node of the invention).

The claimed limitations, in a slightly difference, recite three pages, equivalent to three nodes, in which the first page, the third page, and the second page arranged in such a sequence where the insertion or deletion of the first data item occurs in the third page, and where the moving of the second data item contained in the third page to either the first page or the second page. It is easy to recognize that the target node of Nakamigawa is equivalent to the third node, and that *the adjacent node of Nakamigawa is equivalent to either the first page or the second page of the claim* since the adjacent node is the one that the second data item is moved to. Also, it was obvious that the "adjacent node" of the target node means that the "adjacent node" can precede or follows the target node *provided that it is adjacent to the target node*. Further, as in Culik, each node may have the left brother and the right brother, and it is possible to create a leaf node. Therefore, it is suggested adding a node equivalent to the first node

to the sequence of the target node and the adjacent node since *the node added is merely a form of adjacent node* and for performing the same function as that of the first node or the second node of the invention.

Regarding independent claim 9, Nakamigawa discloses:

- storing information on an amount of available space in each of said plurality of nodes (**figures 2-3**: the pointer count in each node is the information indirectly showing the amount of space available in each node, for example, the pointer count in the node in figure 3 indicates that there are only three records A, B, C in the node and so said node has available space for two more records)
- acquiring an amount of available space in the first node and the second node based on said information stored in step (a), when a first data item is inserted into or deleted from the target node, said plurality of pages include the first node and the second node in a sequential arrangement of the plurality of nodes (**figure 4**: the pointer count (see fig. 2) in the target node with records A, C, D, E, F shows there is *zero available space* for inserting a record to the target node, the pointer count in the adjacent node with records G, H, I shows there are available space for two records; **col 3, lines 39-49, col 4, lines 15-28**: determining if the pointer count of a target node after insertion is greater than M and determining if the pointer count of an adjacent node is less than M' imply that the amount of available space of the first node and the second node is acquired based on the pointer count data)

- moving at least one second data item contained in said first node to said second node according to said amount of available space in each of said first and second nodes, before insertion of said first data item into said first node or after deletion of said first data item from said third page (**figure 4**: record F, equivalent to the second data item, is moved from the target node to the adjacent node, which is equivalent to the second node, since the adjacent node has some space available whereas the target node does not have any available space for inserting record B, which is equivalent to the first data item)
- wherein in the storing step, said amount of the available space is classified into one of a plurality of ranges of amounts of the available space, and said information on the amount of the available space indicates one of the plurality of ranges (col 2, lines 39-50 and col 1, lines 25-62: the maximum size M is for storing the records in one of the nodes and size M' smaller than M is for storing the records in an adjacent node thereto, and an insert process of the records to one of the nodes is performed based on the sizes M and M' via checking the pointer count of the target node and the pointer count of the adjacent node for available space. The minimum size m is for storing the records in one of the nodes and size m' larger than m for storing the records in an adjacent node thereto, and a delete process of the records from one of the nodes is carried out based on the sizes of m and m' via checking the pointer count of the target node and the pointer count of the adjacent node for available space. The ranges of (M', M) and (m, m') are classified for available space for the insertion process

and the deletion process. Therefore, the information of pointer count for deriving the available space in one of the nodes indicates one of the plurality of ranges, either the range for insertion or the range for deletion)

Nakamigawa does not disclose a method of data item managing as above is applied to a plurality of data items contained in a plurality of pages. Instead, Nakamigawa discloses a method *of data item managing for a plurality of data items contained in a plurality of nodes* (figures 2-5).

Culik discloses that each node in a B-tree corresponds to a page where insertion or deletion can be applied to the B-tree (pages 486-487), each node has the left and right brothers (page 487), and a node can be created (page 492).

It would have been obvious to an ordinary skill in the art at the time of the invention was made to have incorporate Culik into Nakamigawa to show that managing of data items in the nodes in Nakamigawa can be applied to managing the data items in the pages, arranged in sequence in a document where the pages are equivalent to the nodes.

Nakamigawa also does not disclose the third page for inserting or deleting data items. However, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to have combined Culik into Nakamigawa to include a first page (or first node) for managing the data item in the sequential pages for the following reason.

In Nakamigawa, two nodes are mentioned: the target node and the adjacent node. The first data item is inserted into or deleted from the target node (equivalent to the third node of the invention) and the second data item is moved from the target node to the adjacent node (equivalent to the second node of the invention).

The claimed limitations, in a slightly difference, recite three pages, equivalent to three nodes, in which the first page, the third page, and the second page arranged in such a sequence where the insertion or deletion of the first data item occurs in the third page, and where the moving of the second data item contained in the third page to either the first page or the second page. It is easy to recognize that the target node of Nakamigawa is equivalent to the third node, and that *the adjacent node of Nakamigawa is equivalent to either the first page or the second page of the claim* since the adjacent node is the one that the second data item is moved to. Also, it was obvious that the "adjacent node" of the target node means that the "adjacent node" can precede or follows the target node *provided that it is adjacent to the target node*. Further, as in Culik, each node may have the left brother and the right brother, and it is possible to create a leaf node. Therefore, it is suggested adding a node equivalent to the first node to the sequence of the target node and the adjacent node since *the node added is merely a form of adjacent node* and for performing the same function as that of the first node or the second node of the invention.

Regarding claim 10, which is dependent on claim 6 (also claims 11-13, which are dependent on claims 7-9 respectively), Nakamigawa discloses that said amount of the available space is classified into one of a plurality of ranges of amounts of the available space, and said information on the amount of the available space indicates one of the plurality of ranges (col 2, lines 39-50 and col 1, lines 25-62). As disclosed in Nakamigawa, the maximum size M is for storing the records in one of the nodes and

size M' smaller than M is for storing the records in an adjacent node thereto, and an insert process of the records to one of the nodes is performed based on the sizes M and M' via checking the pointer count of the target node and the pointer count of the adjacent node for available space. The minimum size m is for storing the records in one of the nodes and size m' larger than m for storing the records in an adjacent node thereto, and a delete process of the records from one of the nodes is carried out based on the sizes of m and m' via checking the pointer count of the target node and the pointer count of the adjacent node for available space. The ranges of (M', M) and (m, m') are classified for available space for the insertion process and the deletion process. Therefore, the information of pointer count for deriving the available space in one of the nodes indicates one of the plurality of ranges, either the range for insertion or the range for deletion.

Regarding claim 14, which is dependent on claim 10, (also claims 15-17, which are dependent on claims 10-13, Nakamigawa discloses that one of the plurality of ranges including the biggest amount of the available space is wider than the other of said plurality of ranges (col 2, lines 39-50: the range (M', M) includes the maximum size M for storing records in one of the nodes where M is used for checking the available space of the target node and where range (M', M) is wider than range (m, m').

Response to Arguments

12. Applicant's arguments filed 1/6/06 have been fully considered but they are not persuasive.

Regarding the 112, first paragraph rejection, the feature "moving at least one second data item contained in the third page to the first page" when the first page has sufficient available space and the second page has insufficient available space of claim 1 is rejected since the specification does not disclose that the second data item contained in the third page is moved to the first page, but to the second page (page 5, line 26 to page 6, line 1).

To overcome the 112, first paragraph rejection of claim 1, Applicants provides the support in the specification that discloses moving "at least one second data item contained in the first page to the second page or the third page according to the amount of space in each of the second or third pages" (page 12, lines 8-12). Applicants also state that according to the description on page 12, the first page is between the second and third pages.

Examiner agrees that the portion of the specification that Applicants point out discloses moving "at least one second data item contained in the first page to the second page or the third page according to the amount of space in each of the second or third pages" where *the first page is between the second page and the third page*.

However, this section of specification does not support the claimed limitations where the *third page is between the first page and the second page as claimed in claim 1*. The argument, thus, is not proper and not persuasive.

Actually, the limitations of claim 1 are supported in the specification (page 4, line 26 to page 6, line 1). According to this portion, the feature of moving the second data item to the first page does not occur. Instead, the second data item is moved to the second page (page 6, line 1). Applicants' arguments are supported in another portion of the specification (page 12, lines 1-13).

These are two different cases since the arrangement of the pages are different. Accordingly, the moving of the second data item in these two cases is different. The claim is not consistent when mixed two different features of two different cases, which cause conflict as pointed out and rejected.

Applicants further provide the support in the specification that data can be moved to either adjacent page found on page 14, lines 1-2 that "a necessary amount of data in the target is moved to a neighbor page" (Remarks, page 10). However, this feature is applied when there is no available space in a target page, a necessary amount of data in the target page is moved to a neighbor page (page 13, line 26 to page 14, line 2). This feature is not for moving the second data item contained in one page to its neighbor pages when one of the neighbor page has sufficient available space and one has insufficient available space as in claim 1.

Regarding the 112, second paragraph rejection on claim 1 (also in claims 6 and 7), Applicants argue that when the conditions of lines 15-17 (which is when the first page has sufficient available space and said second page has insufficient available space) is satisfied, said at least one second data item is moved to said first page. Examiner

agrees. However, Applicants statement that when the conditions of lines 15-17 are not met, the data can be moved to the second page is not persuasive. It is possible that nothing performs when the conditions are *not met*. The feature is not disclosed in the language of the claims. The claim while following the first features in the specification page 4 to page 6, line 1, does not make sense when including second features in page 12, which are totally different to the first ones.

Applicants argue that Nakamigawa fails to disclose or suggest the step of "storing, in an available space information storing unit, information on an amount of available space in each of said plurality of pages" as defined in claim 1 (Remarks, page 12).
Examiner respectfully disagrees. Nakamigawa discloses storing, in an available space information storing unit, information on an amount of available space in each of said plurality of pages (figures 2 and 3, col 2, lines 39-50 and col 1, lines 25-62). As disclosed in Nakamigawa, the insert process of the records to one of the nodes is performed based on sizes M and M' for storing node records and via checking pointer count of the target node and the pointer count of the adjacent nodes for available space. This shows that the information of amount of available space in each of said plurality of nodes, which are equivalent to pages, are stored for performing inserting. The same issue for delete process except on sizes m and m', which are different from sizes M and M' in the insert process. Since Nakamigawa does teach storing information on an amount of available space in each of said plurality of pages, it is suggested there be a

location equivalent to an available-space-information storing unit containing said information.

Applicants argue that Nakamigawa and Culik do not disclose or suggest how the "amount of available space is classified into one of a plurality of ranges of amounts of available space." Examiner respectfully disagrees. As mentioned above, the sizes M and M' are used for checking pointer count of the target node and the adjacent node for available space in the insert process. The sizes m and m' are used for checking pointer count of the target node and the adjacent node for available space in the delete process. Therefore, the fact that the amount of available space based on the size range (M, M') and the size range (m, m') is used in the insert process and in the delete process shows that the amount of available space is classified into different processes.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

St. Denis et al. (US Pat No. 6,490,592, 12/3/02, filed 12/30/99).

Tenev et al. (US Pat No.6,377,259, 4/23/02, filed 7/29/98).

Woo (US Pat App Pub No. 2002/0023089, 2/21/02, filed 2/22/01).

Ramer et al. (US Pat App Pub No. 2002/0174201, 11/21/02, priority 9/30/99).

Bourges-Sevenier (US Pat No. 2002/0083032, 6/27/02, priority 12/1/99).

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cong-Lac Huynh whose telephone number is 571-272-4125. The examiner can normally be reached on Mon-Fri (8:30-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Hong can be reached on 571-272-4124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Cong-Lac Huynh
Primary Examiner
Art Unit 2178
03/23/06